

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification 6 : C07K 14/445, A61K 39/015, C12N 5/08, 15/30</p>	<p>A2</p>	<p>(11) International Publication Number: WO 95/26982 (43) International Publication Date: 12 October 1995 (12.10.95)</p>
<p>(21) International Application Number: PCT/GB95/00737 (22) International Filing Date: 31 March 1995 (31.03.95) (30) Priority Data: 9406492.0 31 March 1994 (31.03.94) GB (71) Applicant (for all designated States except US): ISIS INNO- VATION LIMITED [GB/GB]; 2 South Parks Road, Oxford OX1 3UB (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): HILL, Adrian, Vivian, Sinton [IE/GB]; 2 St Andrew's Road, Oxford OX3 9DL (GB). AIDOO, Michael [GH/GB]; Arthur Sanctuary House, John Radcliffe Hospital, Oxford OX3 9DU (GB). ALL- SOPP, Catherine, Elizabeth, Margaret [GB/GB]; 50 Benson Road, Oxford OX3 7EH (GB). LALVANT, Ajit [GB/GB]; 29 Wamborough Road, Oxford OX2 6JA (GB). PLEBAN- SKI, Magdalena [MX/GB]; 26 Benson Road, Oxford OX3 7EH (GB). WHITTLE, Hilton, Carter [GB/GM]; Medical Research Council Laboratories, P.O. Box 273, Fajara, Near Banjul (GM). (74) Agent: PENNANT, Pyers; Stevens Hewlett & Perkins, 1 Serjeants' Inn, Fleet Street, London EC4Y 1LL (GB).</p>	<p>(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published Without international search report and to be republished upon receipt of that report.</p>	

(54) Title: MALARIA PEPTIDES

(57) Abstract

8-11-Mer peptides are identified, from four *Plasmodium falciparum* antigens, circumsporozoite protein, thrombospondin-related anonymous protein, spirozoite hepatocyte binding antigen and liver-stage antigen-1, as actual or potential cytotoxic T lymphocyte epitopes for human leucocyte antigen class I molecules HLA-A2, HLA-B8, HLA-B7 and HLA-B17. Vaccines for immunization against malaria contain these peptides or oligonucleotides coding for them. A method of inducing primary cytotoxic T lymphocyte responses to a chosen antigen or microorganism comprises incubating lymphocytes *ex vivo* with the chosen antigen or microorganism in the presence of keyhole limpet haemocyanin.